REPORT NO. 84-2-5
ALEXANDRIA FIELD OFFICE

3430
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BLACK TURPENTINE BEETLE ON THE STRONG RIVER RANGER DISTRICT OF THE BIENVILLE NATIONAL FOREST

by

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Abstract

Approximately 72,000 bd. feet of timber has been attacked by black turpentine beetle and marked for salvage removal. Scattered mortality was present in the area. Southern pine beetle was observed in association with black turpentine beetle. Monitoring during December and January and once a month during peak seasonal flight times is recommended.

INTRODUCTION

On November 14, 1983 Forest Pest Management met with Strong River Ranger District personnel and Robert Taylor, Silviculturist from the Supervisor's office to evaluate an area where black turpentine beetle (BTB) damage was occurring.

After thinning, a sale unit of approximately 120 acres was attacked by BTB. BTB attacked trees had already been marked for salvage. Thinning began in March, however, wet conditions in April stopped harvesting until July. The soil was predominately Smithdale. Annosus root rot Heterobasidion (Fomes) annosum (Fr.) Bref. is often associated with this soil type. We looked at the area to determine if disease, site conditions, or mechanical damage may have been responsible for the large number of beetle attacks and to make appropriate recommendations for control, if needed.

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Technical Information

Identification - The black turpentine beetle, Dendroctonus terebrans (Olivier) is the largest of the 5 major bark beetles attacking southern pines. It is about 3/8 inch long, black, and has a rounded tail end.

Type of Damage - The BTB usually attacks freshly-cut pine stumps and stressed or weakened trees. The best way to identify the beetle is by large pitch tubes which are pinkish white to reddish brown and about the size of a 50-cent piece. The first attacks usually occur on the trunk within 18 inches of the ground and most are within 6' of the ground (Merkel, 1981)

Biology - The attacking beetles bore through the outer bark into the inner bark. The attacking beetles lay clusters of eggs, the eggs hatch, and groups of larvae feed side by side and excavate a large contiguous area. The beetle takes 3-4 months to complete a generation.

RESULTS AND DISCUSSION

Approximately 72,000 feet of timber had been attacked by BTB and marked for salvage. The attacked trees were scattered over an area of about 60 acres but most were concentrated in about 30 acres. Some mortality had already occurred. Some trees had attacks 10-15 feet high and one tree had attacks over 20 feet from the ground. Low population levels of southern pine beetle (SPB) were also observed in association with the black turpentine beetles. Five trees contained southern pine beetle and all were in the fresh attacked stage. These freshly attacked SPB trees provide a pheremone source which will attract other southern pine beetles. Since mortality was occurring and this area has had a history of southern pine beetle activity we concur with the decision to salvage.

About 75% of the BTB attacked trees were associated with either root damage or logging scars. Most of the damage was concentrated along a logging road in the sale unit. Some additional attacks could be attributed to skidder damage. However, the remainder of the attacked trees were not associated with either of the above conditions. One dead snag with annosus conks was observed. No other evidence of disease was observed. Annosus root rot did not appear to be occurring at a level which would contribute to BTB populations. A clearcut was conducted earlier and adjacent to the thinned area. BTB populations may have increased to high levels in the harvested area and then were subsequently attracted into the thinned area.

Personal communication with Carl Fatzinger, Entomologist, Southeastern Station provided information about the biology and control of the BTB from his recent work in Florida. In his study, forty-four percent of the total attacks occurred on trees that had

previously been attacked. There are three seasonal peak flights: 1) early March to early April, 2) mid June through early August and 3) mid September to early December (Figure 1). This work was done in Florida so the flight times in Mississippi could vary slightly from those presented.

Black turpentine beetles are usually not a serious problem; however, thinning operations started in March which would have been about the time of the first peak flight of the season. Wet conditions halted harvesting about a month later. Thinning was begun again in July. This would have been during the time of the second peak flight. Timing of thinning operations in combination with the source of beetles from the nearby clearcut may have provided ideal circumstances for beetle development. Timing should be considered in future thinning operations adjacent to clearcuts or in areas with a history of BTB activity.

At this time the concern is with future BTB and SPB populations. Additional attacks after the marked timber is salvaged could result in a sparse stand. One alternative would be to spray stumps and residual stems when the BTB infested timber is salvaged. However, this may not reduce mortality. Kucera, et.al.(1970), found there was no difference in mortality between plots where all fresh-cut stumps and damaged trees were sprayed versus plots where only damaged and infested trees were sprayed. Beetles will reattack trees and are capable of successful attacks even though the trees have been sprayed. It may be necessary to spray 3 times to control BTB and prevent mortality since multiple sprays have resulted in decreased mortliaty (Fatzinger, Personal Communication).

A major problem is determining when to conduct control for BTB. The number of attacks is not necessarily a good indicator of tree mortality. Kucera, et.al. (1970) found some trees survived with more than 5 attacks per square foot of bark surface while others died when there was less than 1 attack per square foot. In a Louisiana study (Feduccia and Mann, 1975) the number of attacks in dead trees varied by size and crown class. Dominants which were killed averaged 36 attacks (range 20-64), codominants 25 (range 10-48) and intermediates 15 (range 7-26). It appeared dominants and codominants tolerate more attacks than do other trees. The state of Georgia is treating for BTB whenever the attacks exceed 1 per square foot of bark area (personal communication with Terry Price, State Entomologist, Ga.).

RECOMMENDATIONS

It is recommended that after the salvage is conducted, the area be monitored during December and January and then once a month during the peak flight months (Figure 1). If attacks are still occurring in December or January or begin to occur at a later date then Forest Pest Management will conduct an evaluation to determine if insecticide sprays are warranted.

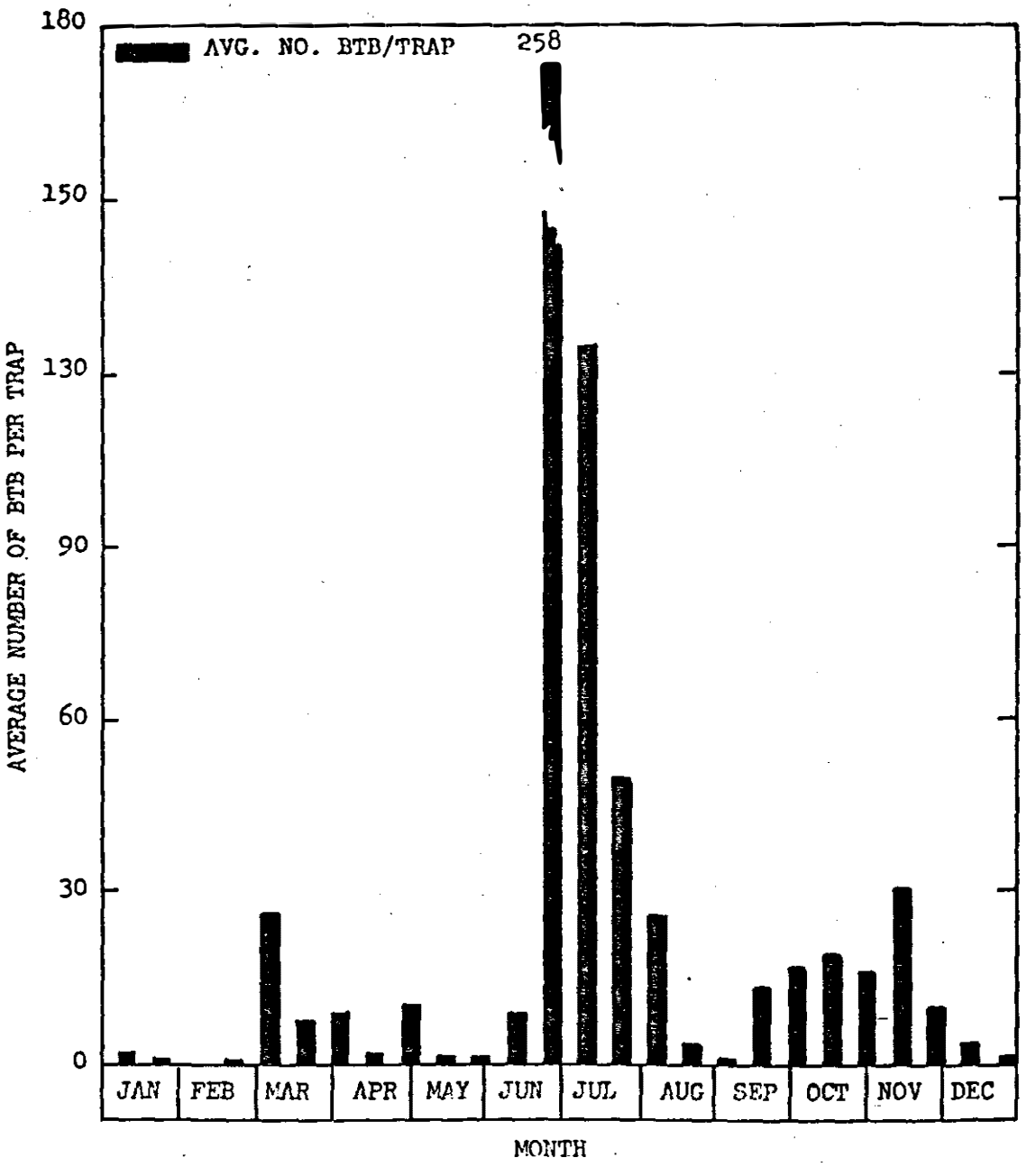

Figure 1.--Seasonal flight activity of BTB as evidenced from captures of BTB in host attractant traps near Olustee, Florida from 1980 to 1981.

NOT FOR PUBLICATION

REFERENCES

Feduccia, D.P. ; Mann, Jr., W.F. Black turpentine beetle infestation after thinning in a loblolly pine plantation. U.S. Department of Agriculture, Forest Service, U.S. Forest Service Research Note, 50-206; 1975. 3p.

Kucera, D.R.; Ward, J.D.; Wallace, H.N. Effectiveness of chemical control for the black turpentine beetle in central Louisiana. Journal of Econ. Ent. 63(1): 104-106; 1970.

Merkel, E.P. Control of the black turpentine beetle. Georgia Forestry Commission, Research Division, Georgia Forest Research Paper 15; 1981. 6p.

PRECAUTIONARY STATEMENT

Pesticides used improperly can be injurious to man, animals, and plants. Follow the directions and heed all precautions on the labels.

Store pesticides in their original containers under lock and key out of reach of children and animals, and away from food and feed.

Apply pesticides so that they do not endanger humans, livestock, crops, beneficial insects, fish and wildlife. Do not apply pesticides when there is danger of drift, when honey bees or other pollinating insects are visiting plants, or in ways that may contaminate water or leave illegal residues.

Avoid prolonged inhalation of pesticide sprays or dusts; wear appropriate protective clothing.

If your hands become contaminated with a pesticide, wash them immediately with soap and water. In case a pesticide is swallowed or gets in the eyes, follow the first aid treatment given on the label and get prompt medical attention. If a pesticide is spilled on your skin or clothing, remove the clothing immediately and wash skin thoroughly. After handling or spraying pesticides, do not eat or drink until you have washed with soap and water.

Do not clean spray equipment or dump excess spray material near ponds, streams, or wells. Because it is difficult to remove all traces of herbicide from equipment, do not use the same equipment for insecticides or fungicides that you used for herbicides.

Dispose of empty pesticide containers promptly. Have them buried at a sanitary landfill dump, or crush and bury them in a level, isolated place.

NOTE: Some states have restrictions on the use of certain pesticides. Check your state and local regulations. Also, because registrations of pesticides are under constant review by the U.S. Environmental Protection Agency, consult your county agent, state extension specialist or FPM to be sure it is still registered for the intended use. For further information or assistance, contact Forest Pest Management, Alexandria Field Office, Pineville, La., 71360, (Telephone: FTS 497-7280, or Commercial 318/473-7280).

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